Synopsys' embARC Open Software Platform Accelerates Development of ARC-based Embedded Systems for the Internet of Things

Online Access to Open Source Drivers, Operating Systems and Middleware Expands Ecosystem Support for Software Developers Implementing ARC Processor-based Designs

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Highlights:

- Comprehensive suite of free and open-source software accelerates development of application software for ARC-based systems and subsystems
- Includes commonly used components for the Internet of Things (IoT) such as MQTT and CoAP internet protocols as well as FreeRTOS and Contiki OS operating systems
- embARC.org downloads, documentation and user forums deliver resources and expertise from a broad community of ARC software developers and partners

Synopsys, Inc. (Nasdaq: SNPS) today launched the embARC Open Software Platform to help accelerate the development of DesignWare® ARC® processor-based embedded systems. The new embARC platform gives ARC software developers online access to a comprehensive suite of free and open-source software that eases the development of code for the IoT and other embedded applications. Device drivers, operating systems and middleware ported to and optimized for ARC processors are available for download without cost from the embARC.org website. The website also provides access to software development tools and documentation as well as user forums to facilitate the sharing of information and expertise among the ARC-based design community.

"We are pleased to see that the embARC Open Software Platform supports the use of the popular open-source FreeRTOS," said Andrew Longhurst, business development manager at Wittenstein High Integrity Systems. "We offer OPENRTOS, the only commercially licensed and supported version of FreeRTOS, thus allowing designers using embARC to move to an RTOS with professional support, maintenance and updates, if needed."

Drivers, Operating Systems and Middleware
Pre-ported drivers for the GPIO, UART, SPI, I2C and other peripherals as well as leading real-time operating systems (RTOS), including FreeRTOS and Contiki OS, give developers a choice of industry-standard software environments for their ARC-based systems. FreeRTOS is a scalable, compact and reliable operating system that is popular among embedded software developers. The Contiki OS is specifically designed for networked, memory-constrained systems such as low-power, wireless IoT applications.

The embARC platform provides a choice of middleware components and a robust starting point for the development of IoT-related devices. The components available for use with FreeRTOS include the TCP/IP stack lwIP, file system fatfs, and MQTT and libcoap IoT protocols. The Contiki OS includes a middleware package with an integrated IoT protocol stack including MQTT, a publish/subscribe messaging protocol for lightweight machine-to-machine communications, and the CoAP application layer protocol for resource-constrained IoT applications.

"FreeRTOS is professionally developed, supported and yet completely free for developers to embed in their commercial products without any requirement to expose their proprietary source code," said Richard Barry, director at Real Time Engineers Ltd. "As the leading RTOS for embedded applications, we are really pleased that Synopsys is making FreeRTOS available as part of their new embARC Platform. ARC users now have a simplified path to join the hundreds of thousands of developers worldwide who already benefit from the ease of use and proven reliability of FreeRTOS."

embARC.org
embARC.org is a dedicated website that provides developers centralized access to free and open-source software, drivers, operating systems and middleware supporting the embARC Open Software Platform. The website also provides documentation and a forum-based community where developers can share their resources, expertise and code to help speed deployment of ARC-processor based embedded systems.

Free and Premium Software Development Tools
Free software development tools built on the open-source Eclipse IDE and GNU toolchain are available for use with the embARC Open Software Platform. This gives developers a flexible software environment with an IDE, compiler, debugger and utilities that are familiar to embedded developers. The embARC software is also supported by the commercially-available Synopsys ARC MetaWare Development Toolkit, giving developers the

option to use a highly optimized toolchain for maximum code density and performance.

The embARC Open Software Platform has been ported to Synopsys' ARC EM Starter Kit, a low-cost software development board consisting of pre-installed FPGA images of ARC EM Processors with peripherals and a software package. The Starter Kit enables rapid software development, code porting, software debugging and profiling for the EM4, EM6, EM5D and EM7D processor cores.

"Synopsys' embARC Open Software Platform provides a comprehensive and easily accessible software development environment that leverages widely-used open source software, operating systems and middleware targeted at IoT and other embedded applications," said John Koeter, vice president of marketing for IP and prototyping at Synopsys. "embARC strengthens the ecosystem that helps software developers get their ARC-based applications to market faster with less risk and development cost."

Availability and Resources
The embARC Open Software Platform is available now, at no cost at www.embarc.org

The ARC EM Starter Kit and the MetaWare Development Toolkit are also available now from the websites below:

- ARC EM Starter Kit: http://www.synopsys.com/dw/ipdir.php?ds=arc_em_starter_kit
- ARC MetaWare Development Toolkit: http://www.synopsys.com/dw/ipdir.php?ds=sw_metaware

About DesignWare IP
Synopsys is a leading provider of high-quality, silicon-proven IP solutions for SoC designs. The broad DesignWare IP portfolio includes logic libraries, embedded memories, analog IP, complete interface IP solutions consisting of controller, PHY and next-generation verification IP, embedded processors and subsystems. To accelerate prototyping, software development and integration of IP into SoCs, Synopsys' IP Accelerated initiative offers IP prototyping kits, IP software development kits and customized IP subsystems. Synopsys' extensive investment in IP quality, comprehensive technical support and robust IP development methodology enables designers to reduce integration risk and accelerate time-to-market. For more information on DesignWare IP, visit http://www.synopsys.com/designware.

About Synopsys
Synopsys, Inc. (Nasdaq:SNPS) is the Silicon to Software™ partner for innovative companies developing the electronic products and software applications we rely on every day. As the world's 15th largest software company, Synopsys has a long history of being a global leader in electronic design automation (EDA) and semiconductor IP, and is also a leader in software quality and security testing with its Coverity® solutions. Whether you're a system-on-chip (SoC) designer creating advanced semiconductors, or a software developer writing applications that require the highest quality and security, Synopsys has the solutions needed to deliver innovative, high-quality, secure products. Learn more at www.synopsys.com.

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